UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

September 12, 2012

REPLY TO THE ATTENTION OF:
SR-6J

Via Electronic Mail and Certified Mail
Return Receipt Requested

Paul Kysel, President
PINES Group
Exemption 6

RE: Pines Site, Pines, Porter County, Indiana
Administrative Order on Consent Docket No. V-W-04-C-784

Dear Mr. Kysel:

Thank you for the comments on the Alternative Screening Technical Memorandum provided by your technical advisor via e-mail on July 9, 2012. The U.S. Environmental Protection Agency has reviewed and incorporated many of the comments into EPA's letter of August 31, 2012, modifying the Alternatives Screening Technical Memorandum. Enclosed with this letter are EPA's responses to your technical advisor's comments that were not incorporated into EPA's letter of August 31, 2012.

If you have any questions regarding this matter, please contact me at (312) 886-4442 or ohl.matthew@epa.gov.

Sincerely,

Matthew J. Ohl
Remedial Project Manager

Enclosure

cc via e-mail: Mark Hutson, Geo-Hydro, Inc.
Lisa Bradley, AECOM
Tim Thurlow, EPA-ORC
Janet Pope, EPA-CIC
Kevin Herron, IDEM

Enclosure

RESPONSE TO COMMENTS ON GEO-HYDRO, INC (GHI) COMMENTS ON THE TECHNICAL MEMORANDUM, ALTERNATIVES SCREENING, PINES AREA OF INVESTIGATION, AOC II

Comments prepared by Geo-Hydro Inc. (GHI) on behalf of People in Need of Environmental Safety (PINES) on the Draft Alternatives Screening Technical Memorandum were incorporated into U.S. Environmental Protection Agency's (EPA) comments submitted to AECOM for Brown, Inc., Ddalt Corp., Bulk Transport Corporation, and Northern Indiana Public Service Company (NIPSCO) with the following exceptions. GHI's comments are presented first, followed by EPA's response to the comment.

SPECIFIC COMMENTS (SC)

GHI SC #3: Section 2.2.3, Page 2-7 – Future changes to human health risk-based comparison levels are possible for many contaminants as the science progresses. Decisions on current sites cannot be predicated on potential changes that may or may not be made at some future date. In directed changes to the Human Health Risk Assessment, EPA identified the absence of hexavalent chromium analyses from groundwater and surface water as a data gap expected to bias low the risk assessment results. This is an example of the many areas of uncertainty that must be considered when formulating remedial alternatives that satisfy the RAOs.

EPA Response: This comment is acknowledged. No specific revision is requested.

GHI SC #4: Section 2.2.4, Page 2-7 – In this section the Respondents assert that, at Yard 520, arsenic "is not transported any significant distance with the groundwater." While arsenic may not currently have migrated to the location of many of the wells in the surrounding neighborhood, it has been shown to be present in monitoring wells located outside of the waste management boundary of Yard 520 and its current mobility must be reduced. Further, the RI/FS has not identified where the CCB-derived arsenic is currently being sequestered and fails entirely to discuss the geochemical conditions under which any sequestered arsenic will remobilize. The document also identifies selenium and chloride as constituents detected at concentrations above comparison levels but indicates that these parameters are not likely to be CCB-derived. Both selenium and chloride are contaminants that are very commonly associated with CCB leachates. Simply because other potential sources of these contaminants may be present in the general area does not mean that Yard 520 and other CCB source area are not contributing significant concentrations of these parameters to the groundwater now, or may do so as CCBs in the area break down by weathering.

EPA Response: This comment was addressed during the review of the HHRA, in which EPA responded as follows:

> It is impractical to require that the HHRA assess "all" hydrochemical processes that may affect contaminant concentrations in the future, and try to account for or predict future subtle changes in water quality along the flow path. The HHRA is based on currently available data. However, the design of a monitoring system and associated monitoring program capable of detecting changes in water quality so that actual site conditions are used to assess any changes in fate and transport and subsequent changes in risk evaluation may be considered as part of future study elements, such as pre-design or design phases and post-remedy 5-year reviews. At a minimum, the monitoring system may include existing monitoring wells, as well as characterization of ongoing leachate seeps and landfill contents (waste composition). Samples may be monitored for water quality parameters such as pH and Eh, and the various chemicals of concern.

For this particular document, it is not necessary for the respondents to present a groundwater monitoring plan; however, it will be reviewed in the Draft FS Report.

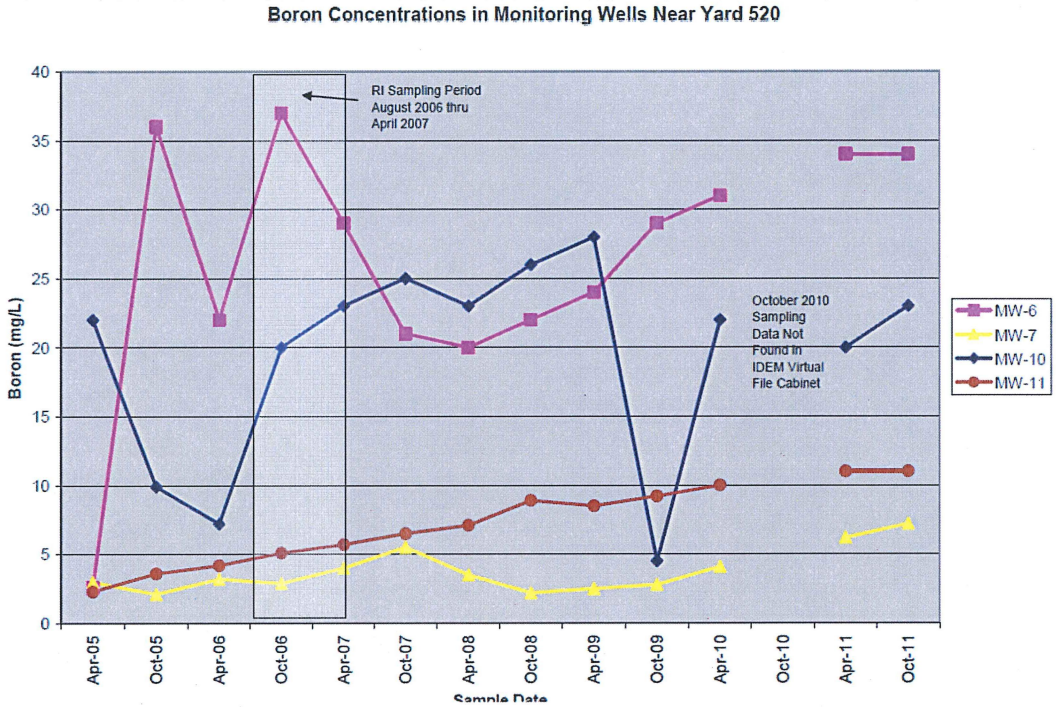
GHI SC #5: Section 2.2.4, Page 2-8 – Contrary to the description presented in this section, Figure 9 shows that elevated boron concentrations extend toward the north from both Yard 520 and other smaller waste disposal areas toward IDNL. The only way to truthfully say that all groundwater containing CCB-derived constituents flow towards and into the Brown Ditch System is to redefine IDNL wetlands as part of Brown Ditch and ignore the impacted groundwater that flows toward Derby Ditch and into the Great Marsh.

EPA response: EPA would like more information on how GHI concluded that impacted groundwater flows toward Derby Ditch. Please indicate, on a map with concentrations, how groundwater is flowing from Yard 520 to Derby Ditch. The Great Marsh is a relatively large area that is included in the IDNL (Indiana Dunes National Lakeshore), and, as indicated in Section 2.2.4 and based on available information, Figure 9 does not show concentrations of boron extending into the area of the IDNL. No revisions are required at this time.

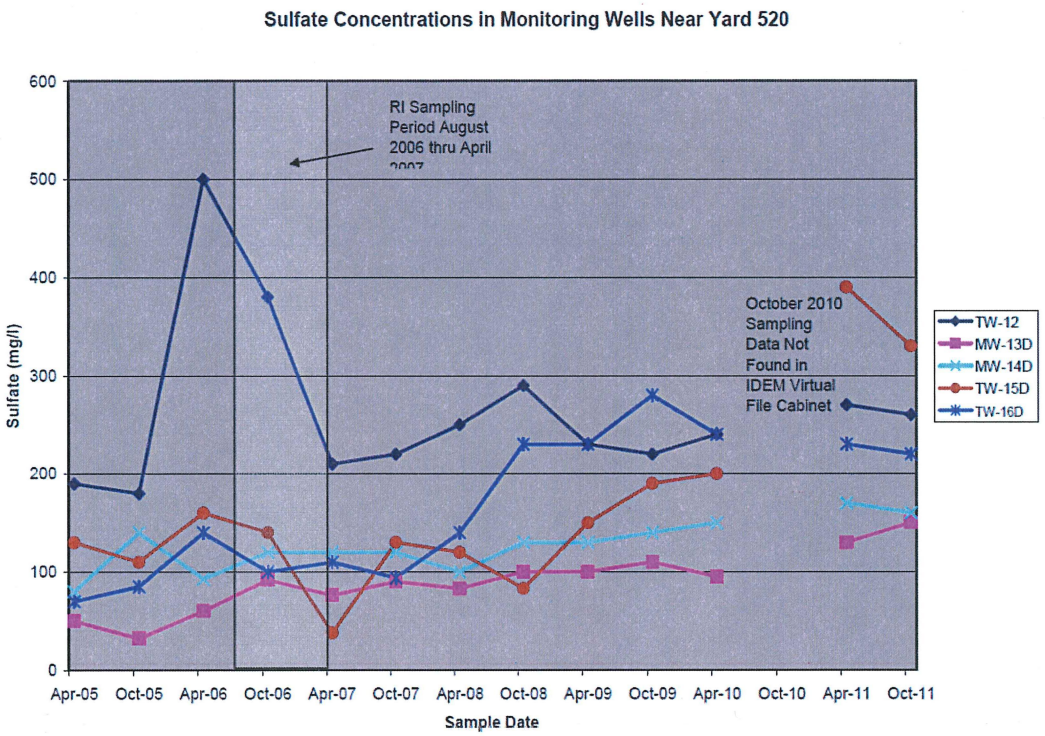
GHI SC #6: Section 2.2.4, Page 2-9 – The discussion of hydraulic gradients and boron concentrations presented in this section is misleading. A statement is made that "Overall, there has been no significant change in groundwater levels or hydraulic gradients since completion of the RI field work." There are no data to justify this statement, but, as discussed below, there are data that refute it. During the RI, rapidly increasing leachate head within North Yard 520 was documented in the only piezometer (PZ001) capable of measuring changes in head within the landfill. This piezometer was immediately abandoned following completion of RI sampling events, allowing no possible inference that head levels had reached the maximum and subsequently remained static. GHI has repeatedly warned that concentrations of CCB-related

contaminants in groundwater may increase outside the landfill units over time solely due to the observed increase in mounded leachate elevation. Concentration increases may be compounded as disposed CCBs continue to weather and chemically evolve. Increasing leachate head within the landfill will have the effect of driving more flow of leachate outward in all directions, including toward the north and northwest toward IDNL, and increasing concentrations of CCB-related contaminants in groundwater over that observed during the RI.

In order to investigate recent changes in groundwater quality in the immediate vicinity of Yard 520 GHI accessed semi-annual monitoring results submitted to IDEM. Reported boron and sulfate concentrations from a subset of monitoring wells located in the immediate area of North Yard 520 were plotted. The plot of reported boron data (below) shows that concentrations have remained very high in some wells (MW-6 and MW-10) and has been generally increasing in others (MW-7 and MW-11) since the RI sampling program was completed. This indicates that contrary to the description of declining boron concentrations provided in the Alternatives Screening Memorandum, areas impacted by CCB-derived constituents in some wells near the source are increasing as anticipated.



The plot of reported sulfate data (below) shows generally increasing sulfate concentrations in each plotted well since the RI sampling program was completed. This data provides another indication of increasing CCB-derived groundwater impacts in the vicinity of Yard 520.



These data plots do not represent a comprehensive evaluation of groundwater quality since completion of the RI. They simply provide an indication of the misleading nature of the discussion of post-RI sampling results presented in the Alternative Screening Memorandum. If left unchecked, increased concentrations of CCB-related contaminants coupled with increasing leachate head and CCB diagenesis will spread CCB-related contaminants in all directions from Yard 520, leading to increased concentrations of these constituents in wells at greater distances from the landfills.

EPA response: The data which GHI uses are not cited and therefore cannot be verified. Please provide the report(s) from which the data GHI used in the above analyses originate and provide a table of concentrations for each analyte. It appears that GHI has obtained data from IDEM's website from a consultant other than AECOM. At this time, the monitoring system is not being evaluated, but it will be in the Draft FS Report. Monitoring will be necessary to verify that the contaminants are not migrating, especially since a groundwater model showing the future extent of groundwater contamination was not accepted for the site. No revisions are required at this time.

GHI SC #18, Section 6.2, Table 8, Monitoring – The monitoring system will require significant modifications before the public can rely on the information that is developed. This lack of confidence in monitoring is partially a result of the failure to acknowledge and, in most cases to detect, contaminant releases and failure to trigger actions to contain releases when contaminants were initially released from Yard 520. The result was that residents were exposed to various contaminated media for years before action was finally taken. The entire Pines

groundwater plume problem could have been avoided had the monitoring system been sufficiently robust and submitted data been appropriately scrutinized as contaminants were initially being released from Yard 520.

Lack of confidence in the monitoring system continues to date because recent monitoring reports submitted to IDEM have been woefully inadequate in characterizing groundwater flow directions and identifying CCB impacts. Data developed during the RI established a large and growing leachate mound within North Yard 520 that drives flow from the landfill in all directions including toward the north and northwest, exactly opposite of the flow direction indicated in recent monitoring reports. Groundwater monitoring reports submitted to IDEM since October 2008 (after abandonment of PZ001) identify the direction of groundwater flow around North Yard 520 as being from off-site areas to the north, through the landfill toward the southwest and southeast, as if the known leachate mound within North Yard 520 has disappeared. Flank discharge of leachate from Yard 520 demonstrates the mound within the landfill remains. Wells identified in the monitoring reports as upgradient wells are in fact downgradient of the landfill and statistical comparisons of supposedly upgradient and downgratient water quality are comparing impacted wells against one another.

Monitoring will be necessary, but the monitoring system will have to include multiple monitoring wells completed within the mass of waste disposed in both North and South Units of Yard 520 landfill to monitor leachate head and changes in leachate chemistry as the disposed CCBs weather and evolve. Additional monitoring wells are needed to the north and northwest of Yard 520 to enable detection of DDB-related constituents traveling through that area and toward IDNL. Firm target concentrations of each monitoring point need to be established that will, if reached, trigger additional predefined remedial actions. Finally, future monitoring reports must be carefully reviewed by an independent third-party that has the time and budget to identify future issues as they develop, with a functional mechanism to initiate further remedial alternatives that address such issues.

EPA response: This comment is acknowledged and noted. At this time, details of the monitoring plan are not proposed; they will be reviewed in the Draft FS Report.